Claims

1. A position measuring device, having

- a code, consisting of code elements (C1, C2, C3) arranged one behind the other in the measuring direction X, wherein each code element (C1, C2, C3) consists of two partial areas (A, B), which are complementary to each other and are arranged sequentially in the measuring direction X,

- a scanning device (AE) with several detector elements (D1 to D11) for scanning several code elements (C1, C2, C3) and for forming at least one scanning signal (S) within each partial area (A, B) of the scanned code elements (C1, C2, C3),

- an evaluation unit (AW) with a comparison device (T1, T2, T3), which compares each of the scanning signals (S) of the partial areas (A, B) of a code element (C1, C2, C3) with the others and forms a binary information (B1, B2, B3) for the code element (C1, C2, C3) as a function of the result of the comparison.

2. The position measuring device in accordance with claim 1, wherein the comparison device (T1, T2, T3) is a device for forming the difference between the analog scanning signals (S) of both partial areas (A, B) of a code element (C1, C2, C3).

3. The position measuring device in accordance with claim 1 or 2, wherein the scanning signals (S) from successive partial areas (A, B) are each conducted to a comparison device (T1, T2, T3), and the evaluation unit (AW) has a control unit (M), which is designed to assure that the binary information (B1, B2, B3) is respectively formed from the two partial areas (A, B) of a code element (C1, C2, C3).

4. The position measuring device in accordance with claim

3, wherein at least one track (R) is arranged parallel with the code (C), whose information (E1, E2) is supplied to the control unit (M), and wherein on the basis of this information (E1, E2) the scanning signals (S) of successive partial areas (A, B) of a code element (C1, C2, C3) are selected for forming the binary information (B1, B2, B3).

5. The position measuring device in accordance with claim 4, wherein the information track (R) is a periodic incremental graduation.

6. The position measuring device in accordance with one of the preceding claims, wherein the evaluation unit (AW) has an error check device (P), which is designed for comparing the difference between the scanning signals (S) of the partial areas (A, B) of a code element (C1, C2, C3) with a nominal difference and, in case of their falling below the nominal difference, to output an error signal (F1).

7. The position measuring device in accordance with one of the preceding claims, wherein the two partial areas (A, B) of a code element (C1, C2, C3) have optical properties which are complementary to each other.

8. The position measuring device in accordance with one of the preceding claims, wherein the detector elements (D1 to D11) are arranged in the measuring direction X at distances corresponding to half the length of a partial area (A, B), and respectively two detector elements (D1 to D11) arranged at a mutual distance corresponding to half the length of a partial area (A, B) are differentially connected.

9. A method for absolute position measuring, having the following method steps

- scanning a code (C) consisting of a sequence of code elements (C1, C2, C3) arranged one behind the other in the measuring direction X, wherein each of the code elements (C1, C2, C3) consists of two partial areas (A, B), which are complementary with respect to each other and are arranged following each other in the measuring direction X,

- generation of at least one scanning signal (S) within each of the partial areas (A, B) of the scanned code elements (C1, C2, C3),

- comparison of the scanning signals (S) from the partial areas (A, B) of a code element (C1, C2, C3) with each other, and

- formation of a binary information (B1, B2, B3) from the comparison.

10. The method in accordance with claim 9, wherein the comparison is the formation of a difference of the analog scanning signals (S) from the partial areas (A, B).

11. The method in accordance with one of claims 9 or 10 with the method step

- comparison of the scanning signals (S) from each of immediately successive partial areas (A, B), and selection of the scanning signals (S), which are respectively formed by scanning the partial areas (A, B) of a code word (C1, C2, C3).

12. The method in accordance with claim 11, wherein the selection takes place by means of a control signal (E1, E2) obtained by scanning at least one information track (R).

13. The method in accordance with one of preceding claims 9 to 12, wherein the difference between the scanning signals (S) from the partial areas (A, B) of a code element (C1, C2, C3) is formed, the difference is compared with a nominal difference, and an error signal (F1) is formed in case they fall below the nominal

difference.

14. The method in accordance with one of preceding claims 9 to 11, wherein the detector elements (D1 to D11) are arranged in the measuring direction X at distances corresponding to half the length of a partial area (A, B), and the difference is formed from respectively two detector elements (D1 to D11) which are arranged at a mutual distance from each other corresponding to the length of a partial area (A, B).

15. The method in accordance with claim 14, wherein each of the differences is compared with a nominal difference and an error signal (F1) is formed in case of falling below the nominal difference, and the binary information (B1, B2, B3) from the pairs of detector elements obtained by forming the difference is selected in a pattern corresponding to the length of a code element (C1, C2, C3) for forming the code word CW, whose sequence generates the least errors (F).